19'-0" LONG BY 15'-0" WIDE PRECAST CONCRETE BRIDGE
SWALE CREEK BRIDGE (WEST)
KLICKITAT COUNTY, WASHINGTON

05/01/2023

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Plans Prepared For:

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STATE OF WASHINGTON
51303
REGISTERED PROFESSIONAL ENGINEER
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RENEWS: 01-05-2025

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

DAVID EVANS AND ASSOCIATES INC.
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Salem Oregon 97306
Phone: 503.361.8655

SWALE CREEK BRIDGE - WEST

DESIGNER: JOSH GOODALL REVIEWER: NICK PEEK
DRAFTER: ANGELA CHISA CHECKER: CARLY DIEHL

TITLE SHEET/DRAWING INDEX SHEET NO. 01

THIS IS THE FILENAME LOCATION ################################ DD-MMM-YYYY HH:MM USERNAME

Bridge Structure General Notes

GENERAL NOTES

1. These plans contain information proprietary to Pacific Bridge and Construction, Inc. and is being furnished for the use of the Yakama Nation Fisheries Program only in connection with this project and the information contained herein may not be reused at other locations unless specifically authorized by Pacific Bridge and Construction, Inc. and David Evans and Associates, Inc.

DESIGN CRITERIA AND LOADINGS

1. Bridge structure designed to comply with the
   American Association of State Highway Officials Design Provisions
   - - AASHTO LRFD Bridge Design Specifications, Ninth Edition, 2020

2. Bridge structure design dead loads
   --The weight of all permanent bridge structure components plus the following:
   Future ACWS of 3" thickness weighing 35 psf.

3. Live load distribution factors:
   Exterior girder shear = 0.66
   Exterior girder moment = 0.40
   Interior girder shear = 0.51
   Interior girder moment = 0.35

4. Vehicular live load - - AASHTO "HL-93"definition.
   Service and Strength I limit states:
   HL-93: design truck

5. Soil pressure loadings on abutments
   A. Abutment wall backfill soil design parameters
   1) Failure State.....At Rest.
   2) Density.....125 pcf.
   3) Coefficient of internal friction.....31 deg.

6. Seismic design is performed in accordance with 6th edition of the "AASHTO Guide Specifications for LRFD Seismic Bridge Design".
   A. 1000 Year return period ("No Collapse" Criteria)
   1) Peak ground acceleration coefficient, PGA = 0.196
   2) Site coefficient for site class D: (fpga) = 1.408

7. Guardrails and/or handrails:
   A. System designed to comply with Crash - Test Level 1 Criteria (static loads only). Barrier system has not been formally crash tested.
   B. Loading and geometry criteria comply with AASHTO Table A13.2-1 and associated requirements.

GRS WINGWALL SYSTEM

1. GRS walls are designed per the design and construction guidelines for Geosynthetic Reinforced Soil Abutments and Integrated Bridge Systems, publication No. FHWA-HRT-17-080, June 2018.

2. Provide GRS Fabric MirafiHPS70, US4800/30, or WINFAB 570HP. If approved by the engineer, another equivalent fabric may be used.

SOILS, FOUNDATIONS, AND BACKFILLS

1. Because the bridge owner has not provided the bridge Engineer Of Record with a professionally qualified, site-specific, geotechnical report, the engineer has designed the bridge structure to be supported on soils having adequate strength and consolidation properties to properly perform under the assumed footing bearing pressures as stipulated in the bridge structural general notes. In addition, the bridge has been designed to be compatible with other on-site and imported soil properties identified in the general notes. The owner understands and agrees that the bridge Engineer Of Record accepts no responsibility and/or liability for injury, death, or property damage, due in whole or in part, because the foundation design for this bridge structure is based on assumed, unconfirmed soil properties, including stream scour.

SOILS, FOUNDATIONS, AND BACKFILLS (CONTINUED)

2. This project has been designed assuming an allowable bearing capacity of 4000 psf. Confirm assumed bearing capacity can be achieved prior to construction.

3. Remove existing fill or soil down to 6" below footing units. Excavate a minimum width of 5'-0" extending at least 6" beyond front and back faces of footing units.

4. Where excavation of fill and/or silt extends below bottom elevation of abutment blocks, provide imported angular crushed rock base per the design plans.

5. Compact imported base material to at least 95% relative compaction.

6. Provide a non-woven, needle-punched soil filter fabric of minimum 4 ounce per square yard weight between backfill soil and back face of abutment walls.
   A. Lap all joints, horizontal and vertical, a minimum of 6 inches.
   B. Install as shown on drawings.

7. Use only free-draining granular material as backfill behind abutment walls. Compact material placed behind walls to 95% relative compaction using only light or hand-operated compaction equipment.

8. To prevent unbalanced lateral loading of abutment walls, install backfill against back face of abutment walls no more than 5'0" above elevation of soil placed against front face until after abutment wall vertical reinforcement has been grouted and only after bridge deck plank units have been dowel-anchored-grouted to top of abutment walls at each end.

STEEL PLATES, PIPES, TUBES, ROLLED SHAPES, BOLTS, PINS, AND WELDS

1. Plate.....ASTM A36.

2. Pipe.....ASTM A53/Grade B or ASTM A501.

3. Rolled Shapes.....ASTM A992.

4. Structural Bolts.....F3125 Grade A325.

5. Weld in conformance with AWS D1.1 by properly certified welders using E70 Electrodes and AWS Prequalified Procedures.

6. Do not weld members after they have been galvanized.

7. Hot-dip galvanize all steel components that are not protected against atmospheric corrosion by a minimum of 1" of concrete cover.
   A. Provide a minimum zinc coating of 2.3 ounces per square foot per ASTM A123 or ASTM A385.
   B. Treat field drilled holes, field welds, and abrasions with one coat of Pittsburgh "Waterspar" or "Speedhide" galvanizing primer and two coats of "Ironhide" metal protective paint.

8. Paint all steel not encased in concrete and too large to be hot-dip galvanized.
   A. Shop-apply (3) paint coatings each 2.0 mil minimum dry thickness.
   1st Coat - Rust-O-Crylic "5769 Rust Inhibiting Red Primer".
   2nd Coat - Rust-O-Crylic "5791 White Primer".
   3rd Coat - Rust-O-Crylic "5700 System Top Coat" (Color per owner).
   B. After completing all field welding and bolting, field-apply the above painting system onto all steel surfaces field-welded, scratched, chipped, or otherwise unprotected against atmospheric corrosion.

CONCRETE

1. General
   A. Provide concrete complying with ACI 301.
   B. Use normal weight (145 pcf +/- 5 pcf) concrete.
   C. Air entrainment volume.....5% +/- 1%.
   D. Provide concrete having a minimum cement content of 6 sacks per cubic yard.
   E. Cast concrete using a maximum water/cement ratio of 5 ½ gals per sack of cement.
   F. Do not use any concrete unit having cracks over 1/16" wide.
   G. Fabricate block "lugs" and "recesses" and plank "recesses" such that the dimensions detailed for them on the drawings are achieved to a tolerance of +/- 1/16".

CONCRETE (CONTINUED)

2. Precast bridge deck planks
   A. Prestressed concrete planks
   1) Interior plank
   Minimum strength at 28 days.....f'c = 4000 psi.
   Strength at removal from form.....fcremove = 4000 psi.
   2) Exterior plank
   Minimum strength at 28 days.....f'c = 4000 psi.
   Strength at removal from form.....fcremove = 4000 psi.
   B. Use aggregates no larger than 1" and no smaller than ¾".
   C. Fabricate plank units to the following dimensional tolerances:
   1) Length..... +/- ½".
   2) Width..... +/- ½".
   3) Thickness..... +/- ¼".
   4) Twist, as measured by "lift" of corner, where the other (3) corners define a horizontal plane: +/- ¼".
   D. Supply plank units having the following surface finishes:
   1) Bottom, sides, and ends....."As-Cast in Steel Forms".
   2) Top surface.....transverse "rake" finish.
   (1/4" by ¼" deep groves spaced at ½" on center)
   E. Provide plank and panel units having no "honeycomb" voids and no corner or edge chips larger than 1" in any direction.

3. Precast abutment block units
   A. Minimum strength at 28 days.....f'c = 3000 psi.
   B. Minimum strength at removal from form.....fcremove = 2000 psi.
   C. Use aggregates no larger than 3" and no smaller than ¾".
   D. Fabricate units to the following dimensional tolerances:
   1) Overall width, length, and thickness..... +/- 1/8".
   2) Squareness on all (6) sides, as measured by comparing lengths of face diagonal distances.....+/- 1/8".
   E. Supply units having "As-Cast in Steel Forms" finish.
   F. Provide units having no "honeycomb" voids and no corner or edge chips larger than 2" in any direction.

4. Mortars and grouts
   A. Provide non-corrosive non-shrink cementitious grout by The Euclid Chemical Company an RPM Company. Grout should be in pourable consistency when placed in longitudinal joints between bridge deck planks.
   1) Provide pre-molded compressible back rods along bottom and at ends of joints to retain dry pack.
   2) Fill longitudinal joints flush with top surface of planks.
   B. Provide non-corrosive non-shrink cementitious grout by The Euclid Chemical Company an RPM Company. Grout should be in fluid consistency when placed between top of top abutment block units and underside of precast deck plank units.
   1) Provide wood setting blocks, pre-molded compressible backer rods, and/or expandable, closed-cell, expandable foam around perimeter of top abutment block(s) to retain grout.
   2) Fill vertical cylindrical voids
   a) Around abutment to deck anchor dowel pins.
   b) Around abutment block vertical reinforcing steel.
   3) Vibrate grout, as required, to assure that all voids spaces are completely filled.

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GENERAL NOTES #1 — SHEET NO. 02

Bridge Structure General Notes

CONCRETE REINFORCING STEEL

1. Provide deformed steel bars complying with ASTM A615, Grade 60.

2. Provide all bars full length.
   A. Do not lap-splice any bar.
   B. Do not weld-splice any bar.

3. Shop-fabricate all bars required to be bent.
   A. Cold-bend all bars.
   B. Do not apply heat to any bar or "tack weld" any bar.

4. Provide minimum concrete cover for reinforcing bars as follows:
   A. At bottom and sides of precast bridge planks.....1" +/- ¼".
   B. At ends of precast bridge planks.....2" +/- ¼".
   C. At top surface of precast bridge planks.....1 ½" +/- ¼".
   D. At all surfaces of reinforced abutment blocks.....1 ½" +/- ¼".

5. Position bars as shown on the drawings to the following tolerances:
   A. Bar location as measured perpendicular to bar length.....+/- ¼".
   B. Bar location as measured parallel to bar length.....+/- ½".
   C. Longitudinal location of bends and ends of bars.....+/- ½".

SPECIAL INSPECTIONS AND TESTING

1. All concrete is placed under "casting plant" conditions in reusable steel forms. No concrete is cast on-site.

   A. Provide periodic inspection of concrete reinforcement each day concrete is cast.

   B. Perform standard field tests on plastic concrete each day concrete is cast, and mold a minimum of 3 standard cylinders for testing at 28 days.

   C. Inspection/testing reports are available from Pacific Bridge and Construction, Inc.

HORIZONTAL TRANSVERSE RODS FOR PRECAST BRIDGE PLANKS

1. Provide transverse tie rods for precast bridge planks at elevations and spacing as shown on the drawings.

2. Use ¾" Grade 75 all-thread rebar.

3. Galvanize transverse rods, steel bearing plates, and heavy hex nuts to provide a minimum zinc coating thickness of 2.3 oz./sq ft.

4. Bring nuts on each end of all rods to fully "snug" condition, then tighten each nut $1\frac{1}{2}$ turns.

5. After nuts have been properly tightened, install lock nut at each end of rod. Rod shall extend ½" beyond lock nut.

6. Do not tighten nuts at ends of rods until grout in all longitudinal joints has cured to a minimum compressive strength of 5000 psi.

INSTALLATION NOTES

1. General
   A. These drawings and bridge structure general notes indicate finished constructed structure.
   B. Except as specifically indicated as "required" installation procedures, sequences, means, and methods are the sole responsibility of the installation contractor.
   C. Plans, sections, details, and bridge structure general notes provided by David Evans and Associates, Inc. pertain only to the bridge structure.
   D. These installation notes may not be all-inclusive. Installation contractor shall perform all work required to produce a properly constructed bridge structure.

INSTALLATION NOTES (CONTINUED)

2. Prepare site for installation of bridge
   A. Construct temporary dams and other required stream diversions.
   B. Provide acceptable required dewater and sediment controls.
   C. Install pumps, pipes, and other required apparatus.
   D. Install "required" signage and close road to traffic.
   E. Remove existing culvert, bridge structure, and abandoned debris.
   F. Excavate for placement of abutment footing units.
   G. Obtain acceptance of foundation bearing subsurface by geotech.
   H. Stability and safety of all temporary excavations and structures are the sole responsibility of the installation contractor.

3. Install abutments
   A. Place abutment footing units level and at proper elevation(s).
   B. Where necessary, provide grout plug in bottom of grout holes at footing vertical voids "required" to contain vertical rebar.
   C. Provide 8" to 10" diameter annular grout retainage rings on top of each abutment around vertical voids to be reinforced using a well-bonding insulating spray foam (to retain grout when abutment vertical rebar is grouted later).
   D. Stack abutment units plumb onto center of footings.
      1) Place fill on front and back sides of abutments.

4. Place precast concrete bridge plank units
   A. Place continuous wood bearing strips along top front edge or top back edge of top abutment units.
   B. Note that it is "required" that deck plank units be lifted at points located only at their ends.
   C. Use only proper lifting techniques such as spreader bars, etc.
   D. Set precast deck planks.
   E. Install premolded compressible backing rod full length at bottom and vertically at each end of all longitudinal grout joints.
   F. Thread PVC sleeves thru transverse tie rod voids.
   G. Fully grout all longitudinal joints full depth and full length.
   H. Allow longitudinal joint grout in all joints to cure a "Required" minimum of 4 hours.

5. Install premolded compressible backer rods continuous along (3) edges of top abutment blocks (under deck planks).

6. Install rebar dowels and/or verticals at each end of planks down into pre-formed and/or field-drilled holes in abutment block units.

7. Install vertical rebar through deck planks to bottom of footing units.

8. Fully grout (under pressure if required) voids around vertical rebar and simultaneously fill voids under deck planks at top of abutments. Allow grout to cure a minimum of 4 hours.

9. Install and fully tighten transverse tie rods as "required".

10. Remove 4" (minimum) lengths of backer rods under ends of planks at 2'0" (Maximum) intervals to confirm grout void has been filled. Confirmin that at least 80% of the length of the grout edge has full contact along both the top and bottom joint surfaces.

CONCRETE PRESTRESSING STRAND

1. Provide uncoated 7-wire, Grade 270, low-relaxation prestress strand conforming to ASTM A416, including current supplements of ½" diameter and cross-sectional area 0.151 sq in.

2. Do not use any portion of strand having scratches, gouges, nicks, or any other abrasion, or any portion of strand previously gripped by jacking chucks.

3. Run strand straight between jacking chucks - Do not harp strands.

4. Jack each ½" diameter strand to a force of 31,000 lbs. (75% of breaking strength).

5. Confirm jacking force by measuring stretch of strand as it is jacked.
   A. Strain at initial jacking force = 0.00711 in/in.
   B. Example: For a distance of 64'-4" between jacking chucks and a computed shortening of the self-stressing forms of ¼", the stressing jack will move 5 ¾" relative to the bulkhead.

6. Recommended jacking sequence:
   A. Apply initial jacking force of 5000 lbs. to each strand to seat jacking chucks (will stretch strand $\frac{7}{8}$").
   B. Starting with center strands, sequentially stress each strand.
   C. After stressing all strands, confirm that the required 31,000 lb. force has been achieved in each strand. (Center strands may require additional jacking.)
   D. After concrete has attained its required release strength, de-tension strands in reverse order of stressing the strands.

7. Prior to moving prestressed concrete unit from manufacturing plant provide corrosion protection by thoroughly coating ends of strands with a self-adhesive, asphalt-based, corrosion preventive mastic (Henry "HE209 - Elastomeric" and "104 Asphalt Primer", if required).

SHIPPING & HANDLING

1. Precast bridge planks shall only be picked by lifting loops at the ends of the plank. Contractor shall use equipment such that the attachment to the lifting loops remain vertical or no more than 20° from vertical.

2. Inspect lifting loops for damage prior to picking up planks. If damage has occurred to lifting loops do not proceed without engineer's approval.

3. During shipping or storage of the planks place wood blocking under the plank directly under the lifting loops at each end of the plank.

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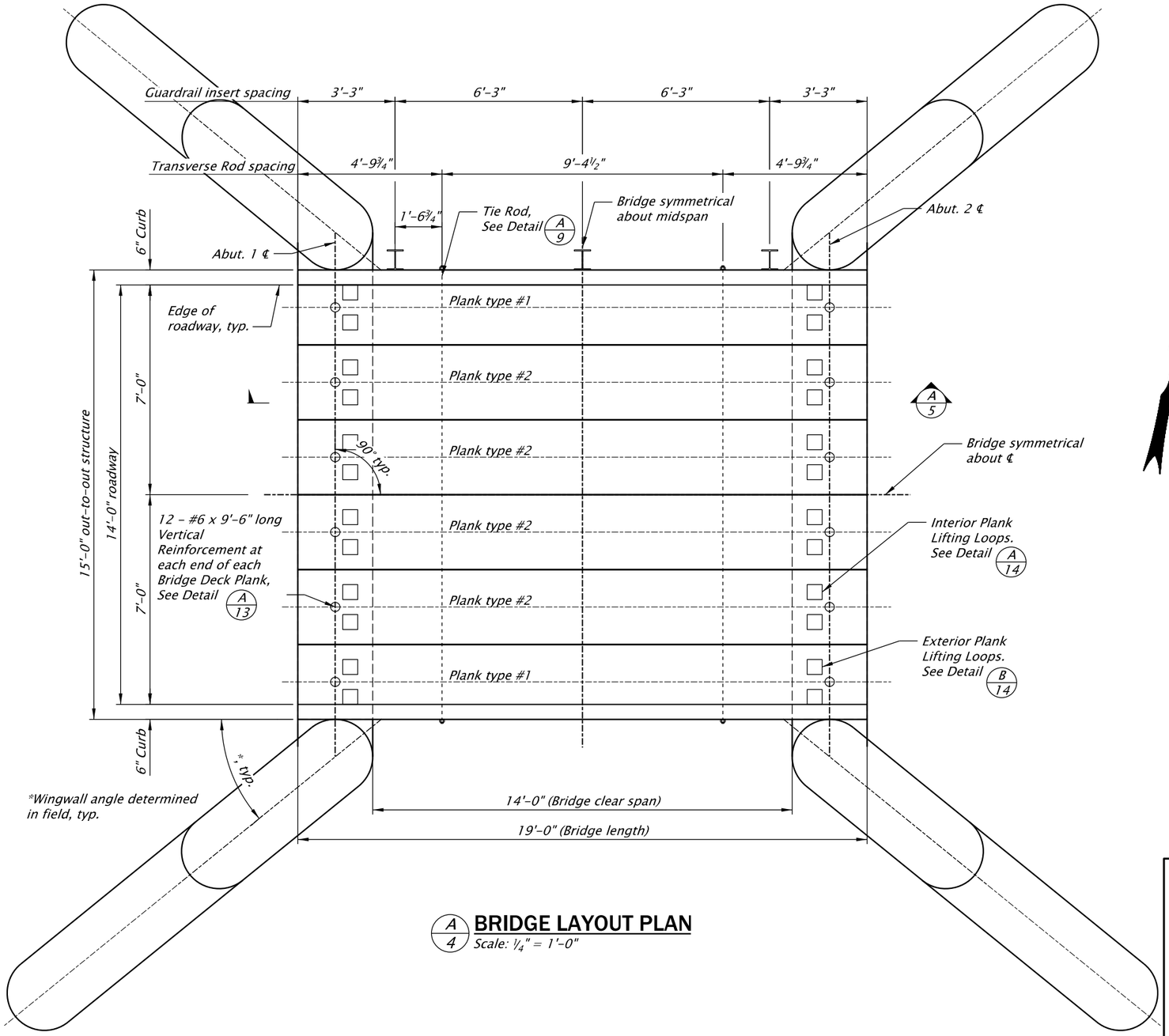
GENERAL NOTES #2

SHEET NO. 03



A/4 **BRIDGE LAYOUT PLAN**
Scale: ¼" = 1'-0"

N

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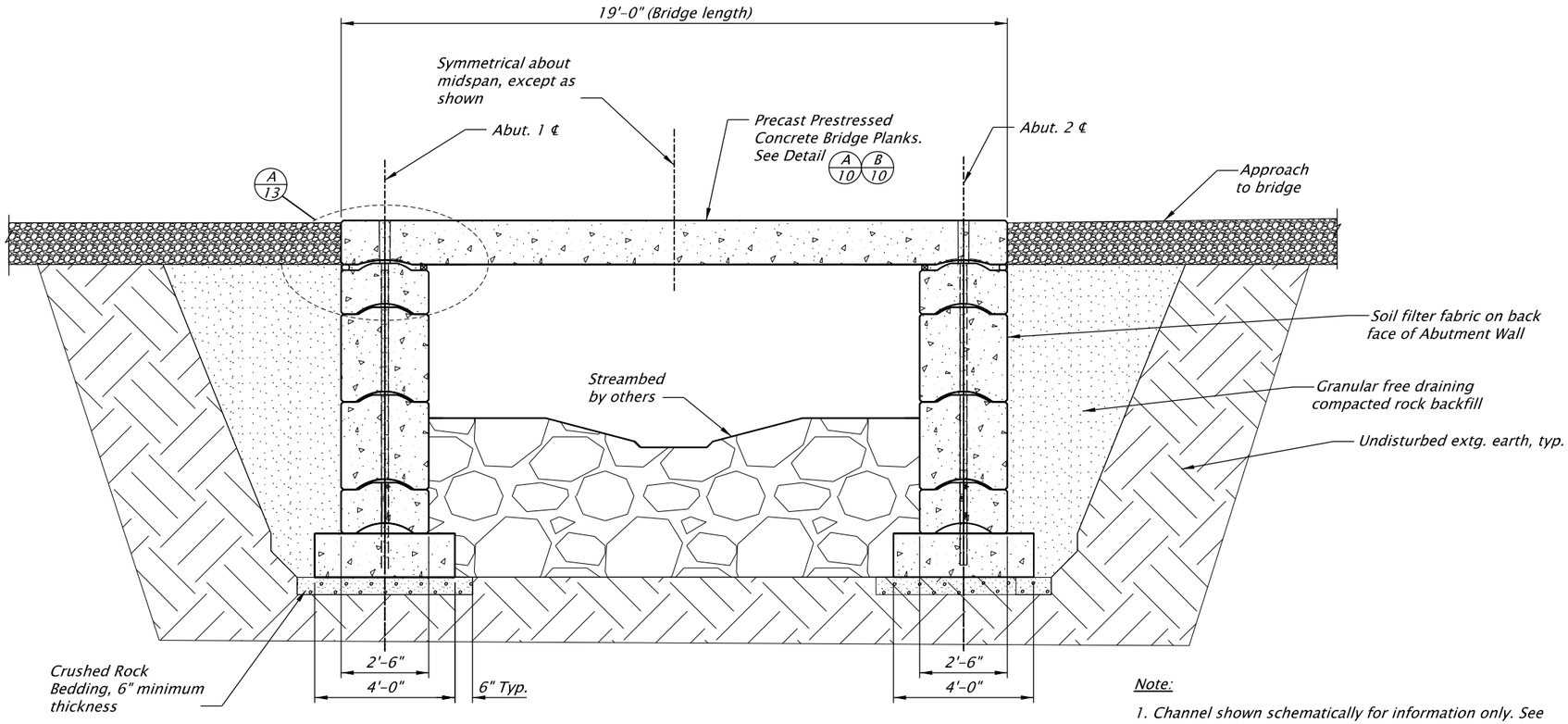
BRIDGE LAYOUT PLAN

SHEET NO. 04



A/5 LONGITUDINAL SECTION THROUGH BRIDGE

Scale: 3/8" = 1'-0"

Note:

1. Channel shown schematically for information only. See Project Plans for stream configurations.
2. Structure shown flat. See Project Plans for slope.

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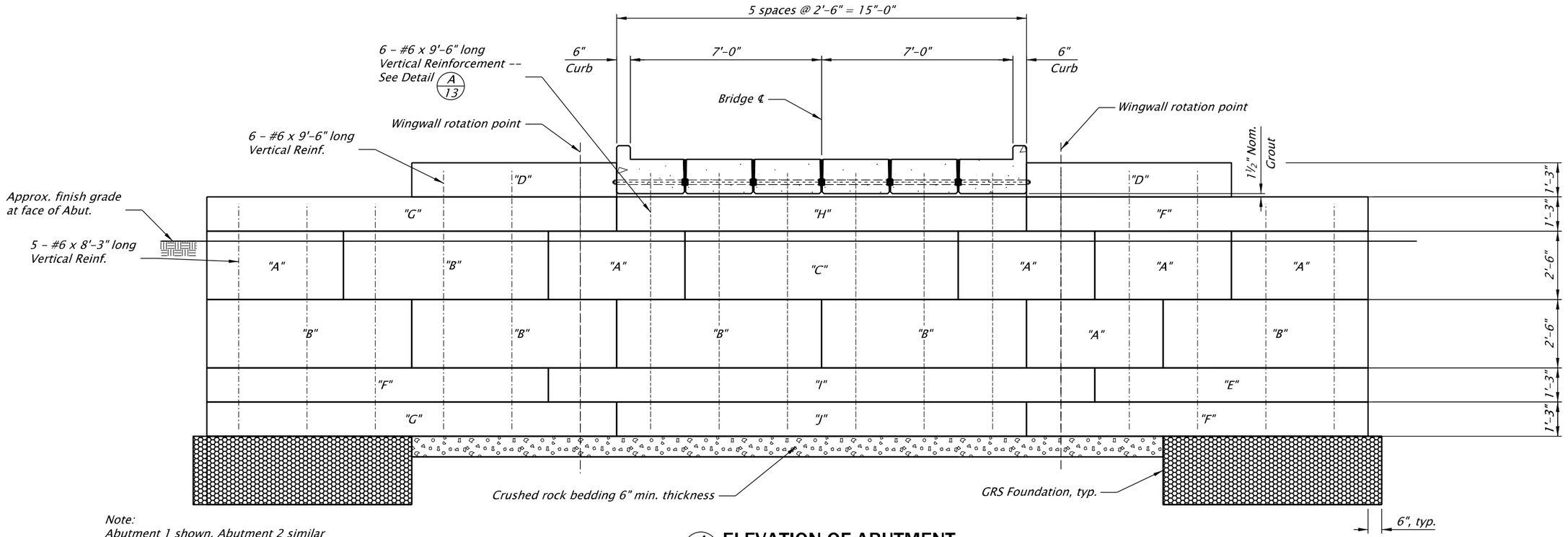
LONGITUDINAL SECTION THRU BRIDGE

SHEET NO. 05



Note:
Abutment 1 shown, Abutment 2 similar

A/6 ELEVATION OF ABUTMENT

Scale: ¼" = 1"-0"

Precast Concrete Abutment Block Schedule

Unit Mark	Total Count	Unit Type	Reference	Dimension			End Shape		Reinf Bars	Notes
				Length	Height	Width	Left	Right		
"A"	12	Standard	Dwg. "A/11"	5'-0"	2'-6"	2'-6"	Round	Round	No	(1)
"B"	12	Standard	Dwg. "A/11"	7'-6"	2'-6"	2'-6"	Round	Round	No	(1)
"C"	2	Standard	Dwg. "A/11"	10'-0"	2'-6"	2'-6"	Round	Round	No	(1)
"D"	4	Mono	Dwg. "A/12"	7'-6"	1'-3"	2'-6"	Round	Round	Yes	(1)
"E"	2	Mono	Dwg. "A/12"	10'-0"	1'-3"	2'-6"	Round	Round	Yes	(1)
"F"	6	Mono	Dwg. "A/12"	12'-6"	1'-3"	2'-6"	Round	Round	Yes	(1)
"G"	4	Mono	Dwg. "A/12"	15'-0"	1'-3"	2'-6"	Round	Round	Yes	(1)
"H"	2	Mono	Dwg. "A/12"	15'-0"	1'-3"	2'-6"	Square	Square	Yes	(1)
"I"	2	Mono	Dwg. "A/12"	20'-0"	1'-3"	2'-6"	Round	Round	Yes	(1)
"J"	2	Footing	Dwg. "A/15"	15'-0"	1'-3"	4'-0"	Square	Square	Yes	(1) (2)

Note:
(1) These units are reversible as required by project layout (left-to-right).
(2) Lugs on these Blocks are to be omitted.

B/6 ABUTMENT BLOCK SCHEDULE

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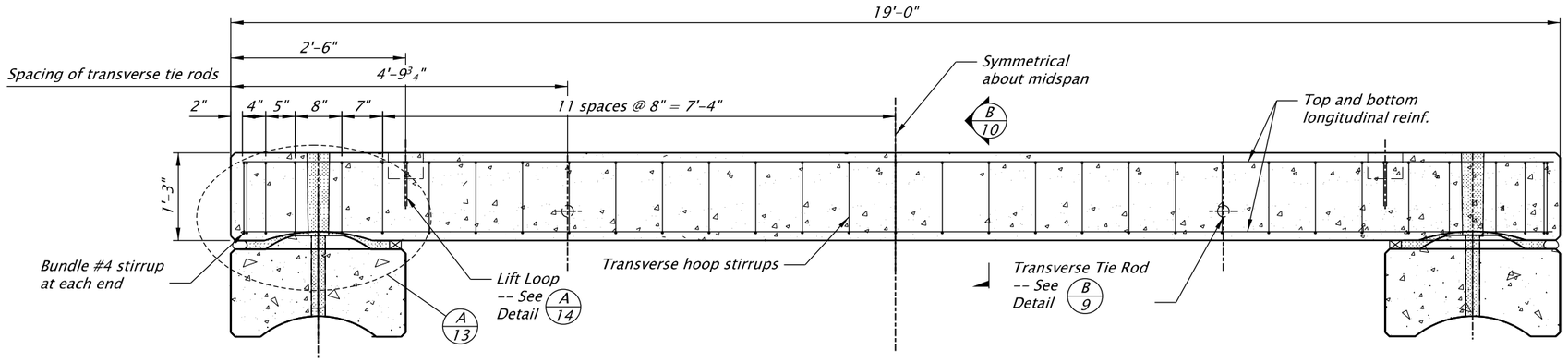
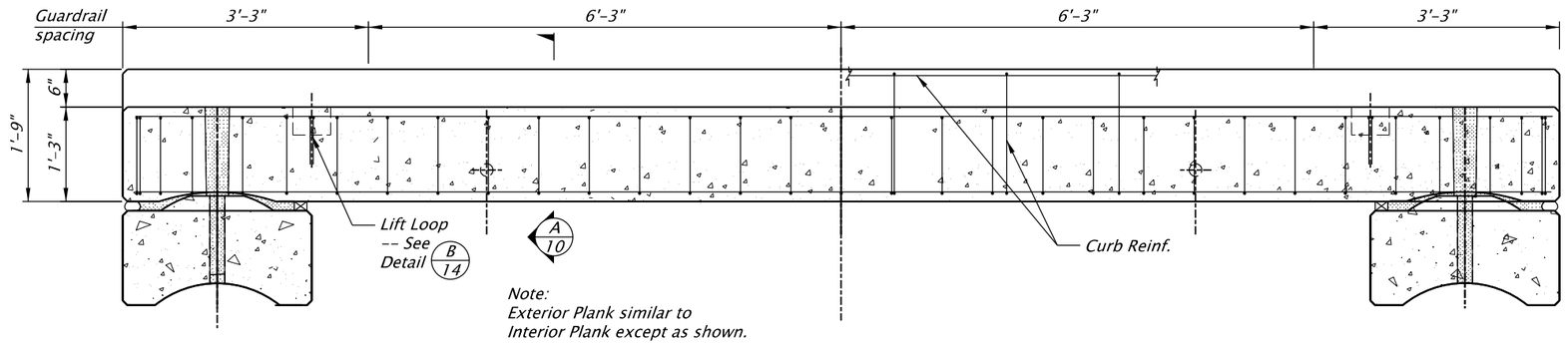
ABUTMENT ELEVATION

SHEET NO. 06



A/7 LONGITUDINAL SECTION OF CONCRETE INTERIOR PLANK - TYPE "2"

Scale: 1/2" = 1'-0"



Note:
Exterior Plank similar to Interior Plank except as shown.

B/7 LONGITUDINAL SECTION OF CONCRETE EXTERIOR PLANK – TYPE "1"

Scale: 1/2" = 1'-0"

Girder Shear Reinforcement

Unit Mark	Total Count	Unit Type	Reference	Main Stirrup Number	Curb Stirrup Number	Extra Guardrail Stirrup	Unit Weight
Type "1"	2	Exterior	A/10	33	13	0	10 kips
Type "2"	4	Interior	B/10	33	N/A	N/A	9 kips

Notes:
1. Structure shown flat. See Project Plans for slope.
2. All Longitudinal reinforcing bars extend full length of Plank.
3. Adjust main stirrups as required to place Transverse Tie Rods. Do not exceed maximum stirrup spacing.

C/7 SHEAR REINFORCEMENT SCHEDULE

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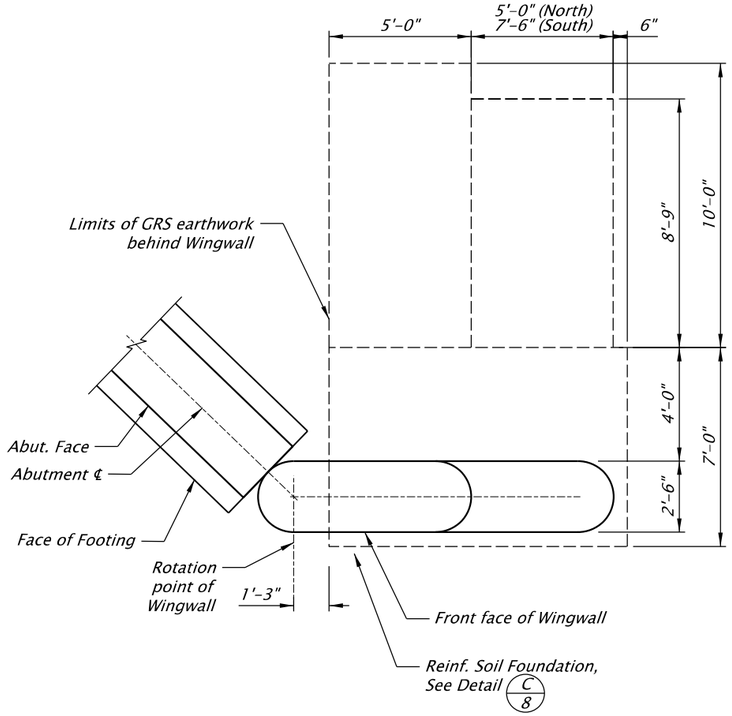
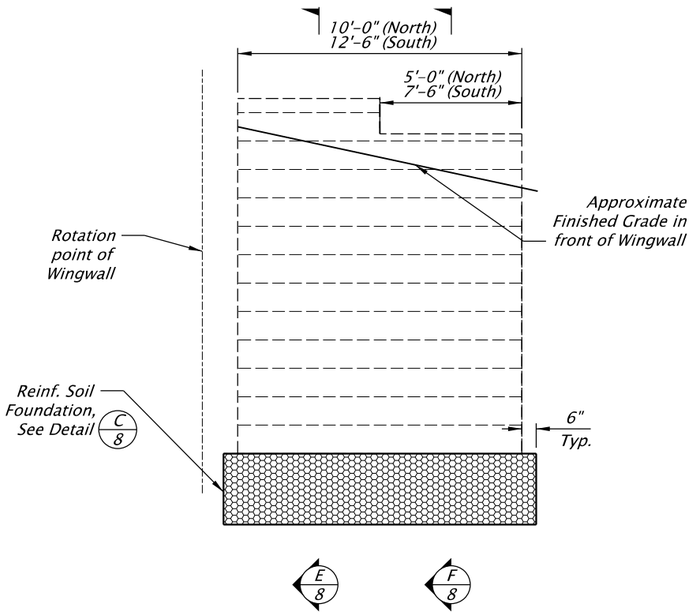
LONGITUDINAL SECTION OF PLANKS

SHEET NO. 07



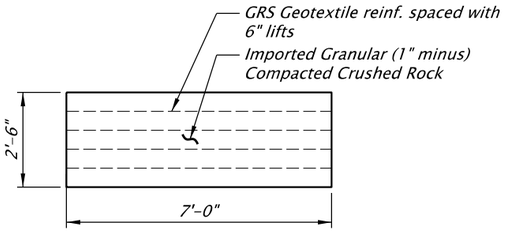
A/8 GRS WINGWALL PLAN VIEW

Scale: 3/16" =1'-0"



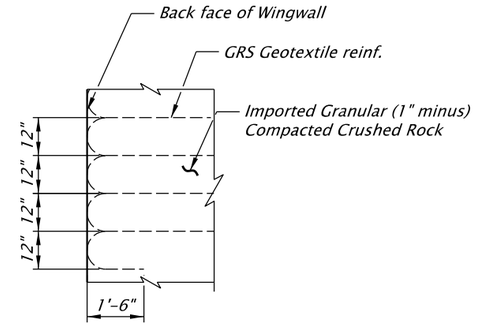
B/8 GRS WINGWALL ELEVATION VIEW

Scale: 3/16" = 1'-0"



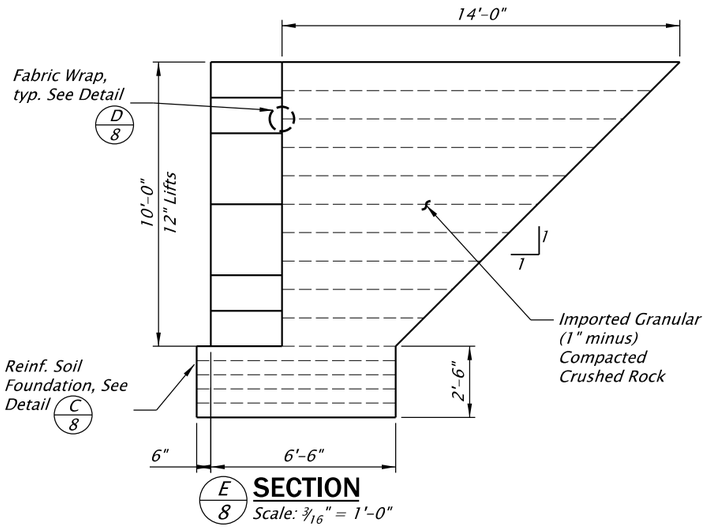
C/8 REINFORCED SOIL FOUNDATION DETAIL

Scale: 1/4" = 1'-0"



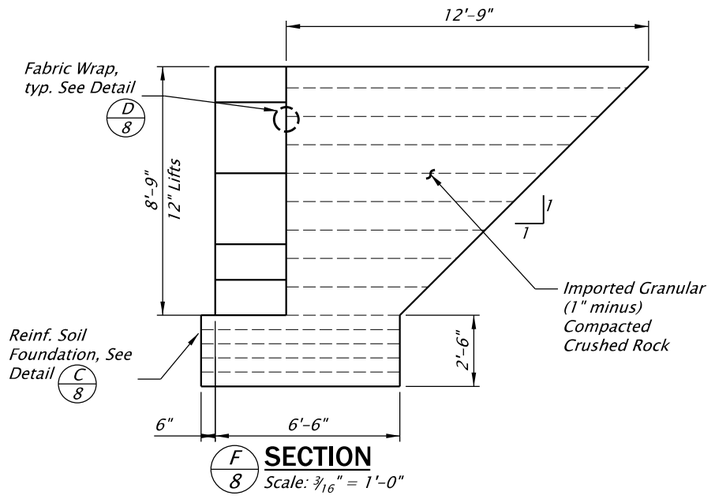
D/8 FABRIC WRAP DETAIL

Scale: 1/4" = 1'-0"



E/8 SECTION

Scale: 3/16" = 1'-0"



F/8 SECTION

Scale: 3/16" = 1'-0"

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SWALE CREEK BRIDGE - WEST

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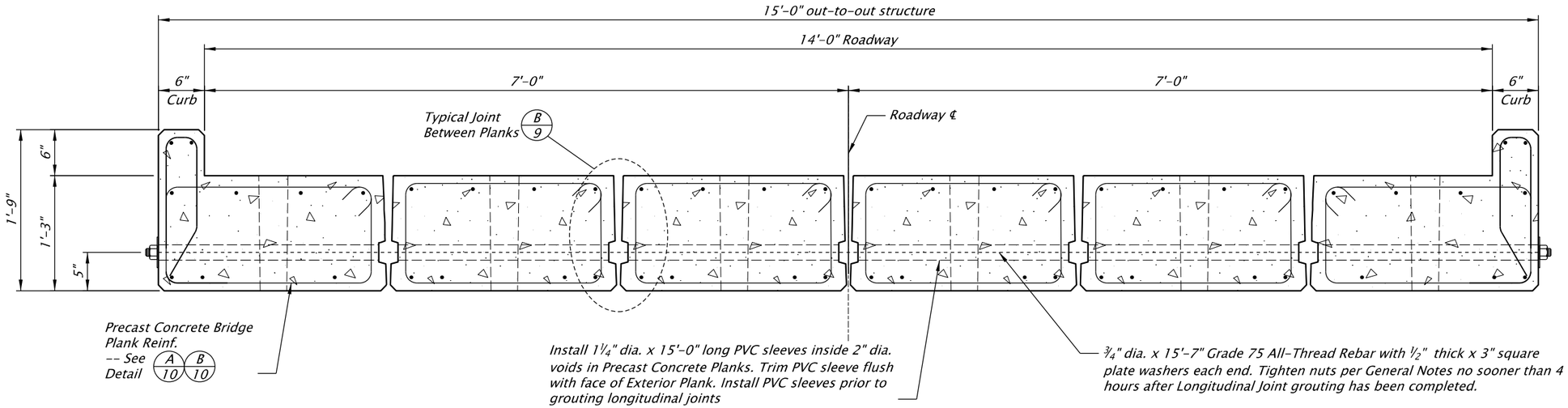
DRAFTER: ANGELA CHISA
REVIEWER: NICK PEEK
CHECKER: CARLY DIEHL

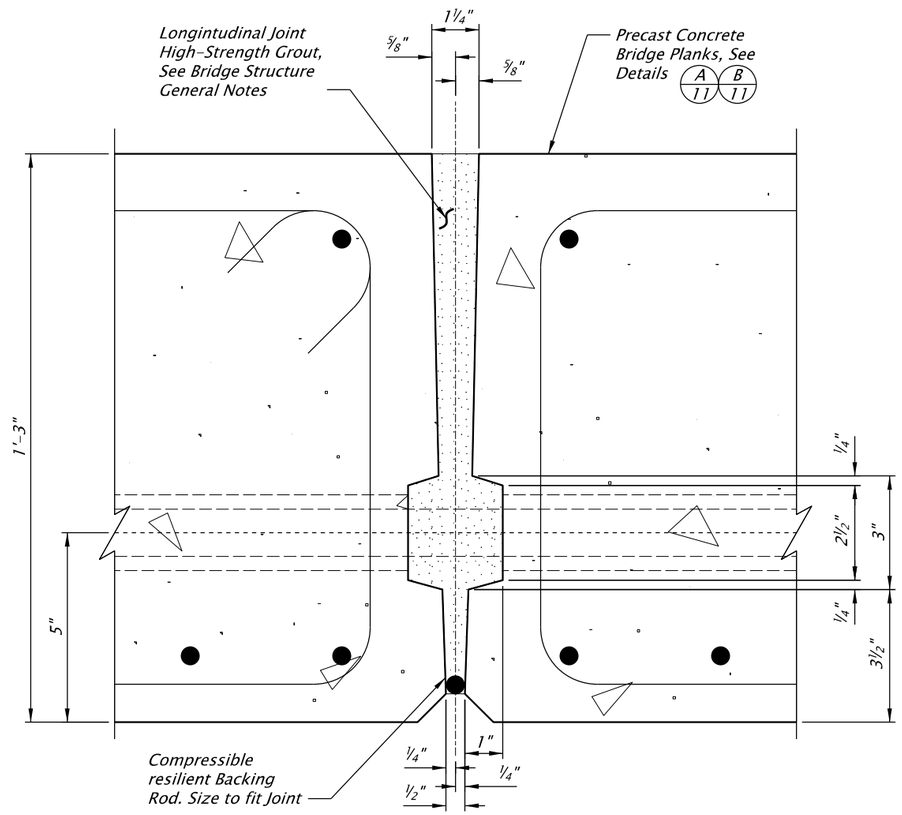
WINGWALL GRS DETAILS

SHEET NO. 08



A/9 TYPICAL TRANSVERSE TIE ROD ACROSS FULL WIDTH OF PRECAST CONCRETE PLANK BRIDGE DECK

Scale: ¾" = 1'-0"



B/9 TYPICAL LONGITUDINAL KEY JOINT BETWEEN 15" THICK PRECAST CONCRETE BRIDGE PLANKS

Scale: 3" = 1'-0"

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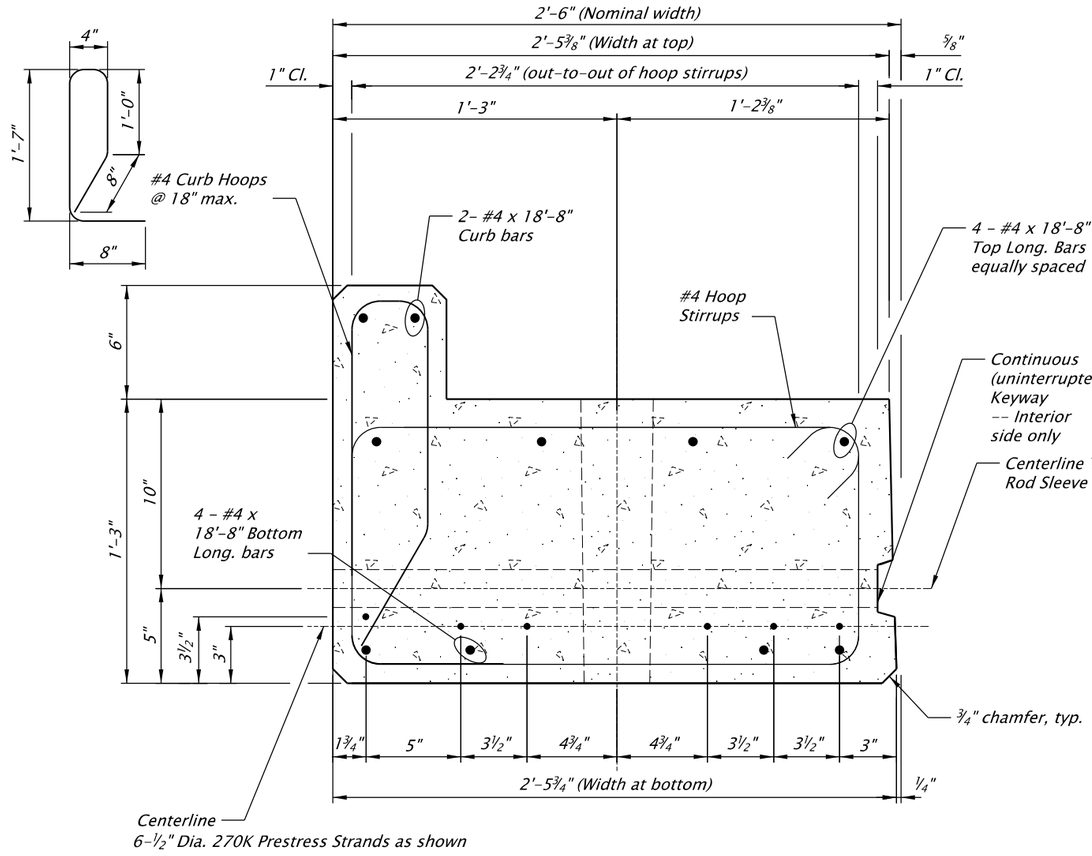
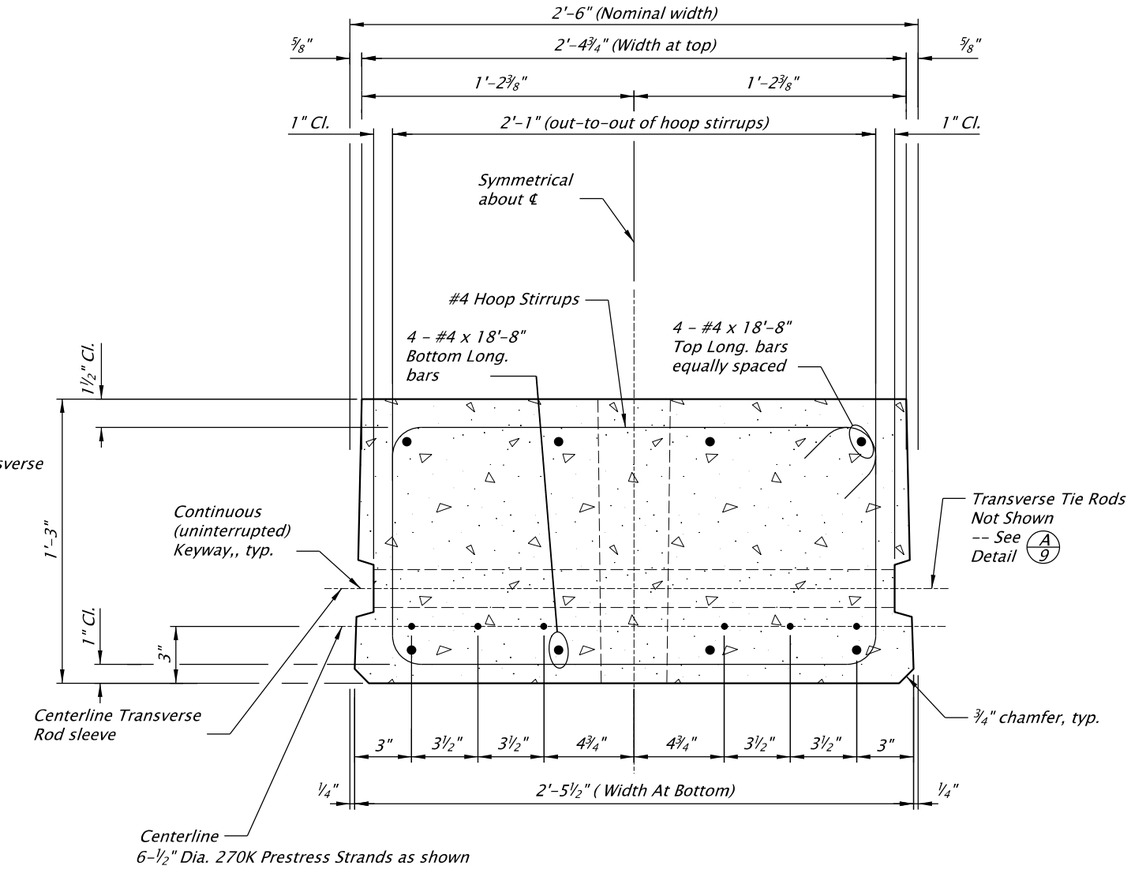
MISCELLANEOUS DECK PLANK DETAILS

SHEET NO. 09



A/10 TRANSVERSE SECTION THRU PRESTRESSED EXTERIOR PLANKS

Scale: 1½" = 1'-0"



B/10 TRANSVERSE SECTION THRU PRESTRESSED INTERIOR PLANKS

Scale: 1½" = 1'-0"

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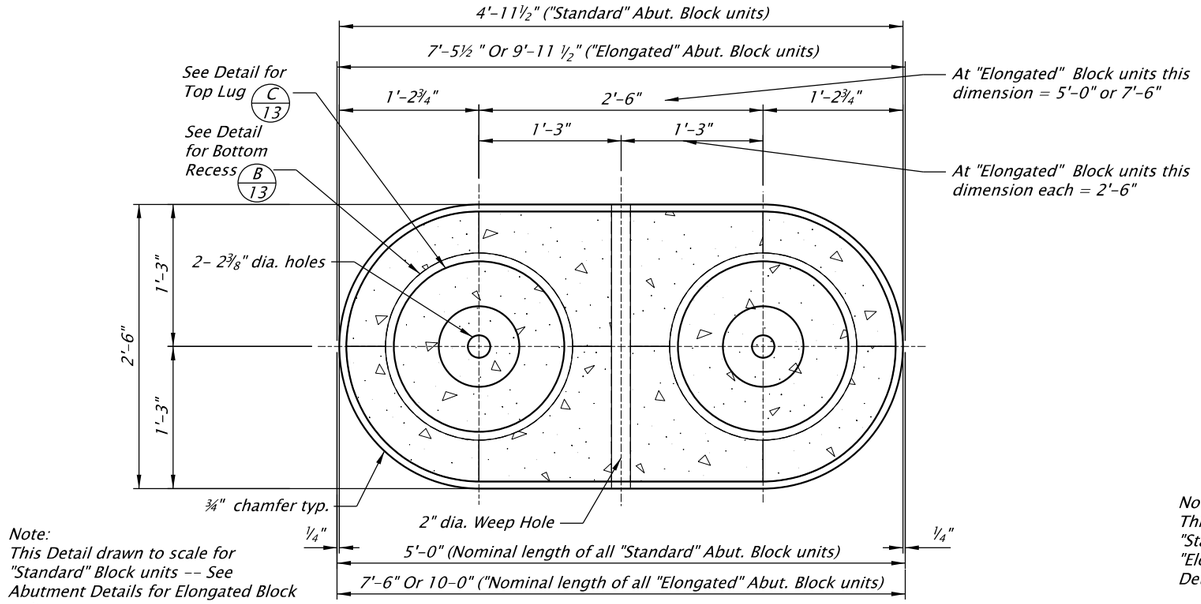
DECK PLANK SECTIONS

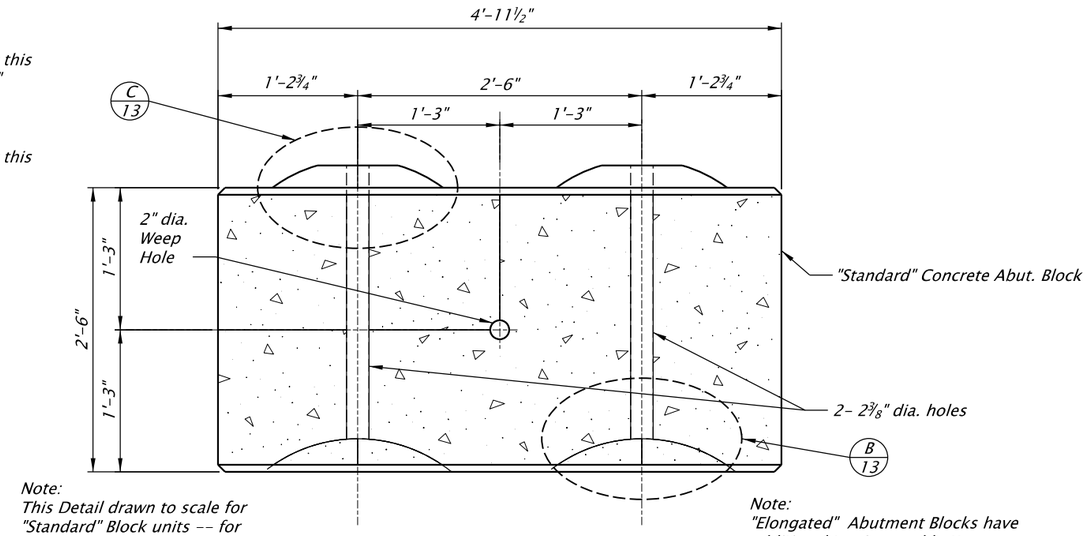
SHEET NO. 10



Note:
This Detail drawn to scale for "Standard" Block units -- See Abutment Details for Elongated Block units

A/11 TOP VIEW OF "STANDARD" & "ELONGATED" ABUTMENT BLOCKS

Scale: ¾" = 1'-0"

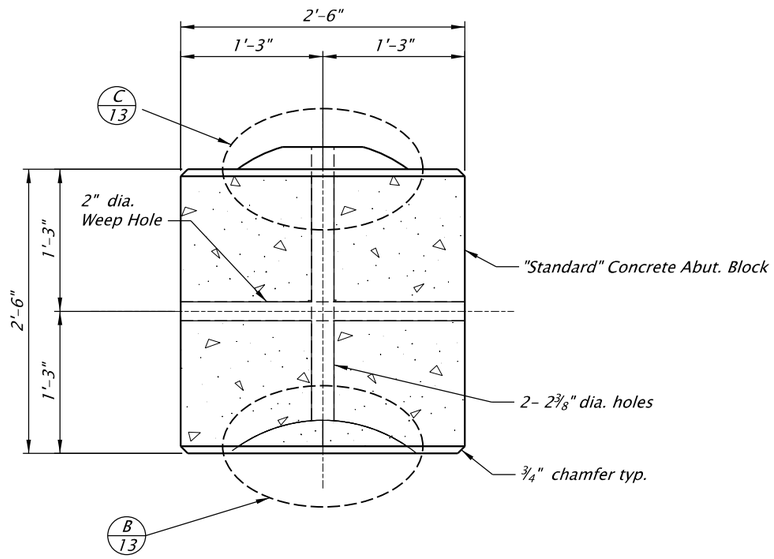


Note:
This Detail drawn to scale for "Standard" Block units -- for "Elongated" Block units See Abutment Details

Note:
"Elongated" Abutment Blocks have additional top Lug and bottom Recesses compared to a "Standard" Block. Lugs and Recesses should be spaced at 2'-6" O/C.

B/11 FRONT VIEW OF "STANDARD" ABUTMENT BLOCK

Scale: ¾" = 1'-0"



C/11 SIDE VIEW OF "STANDARD" ABUTMENT BLOCK

Scale: ¾" = 1'-0"

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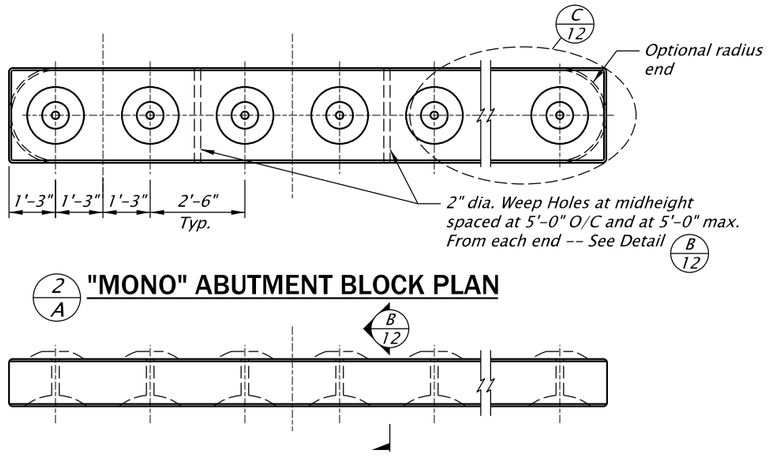
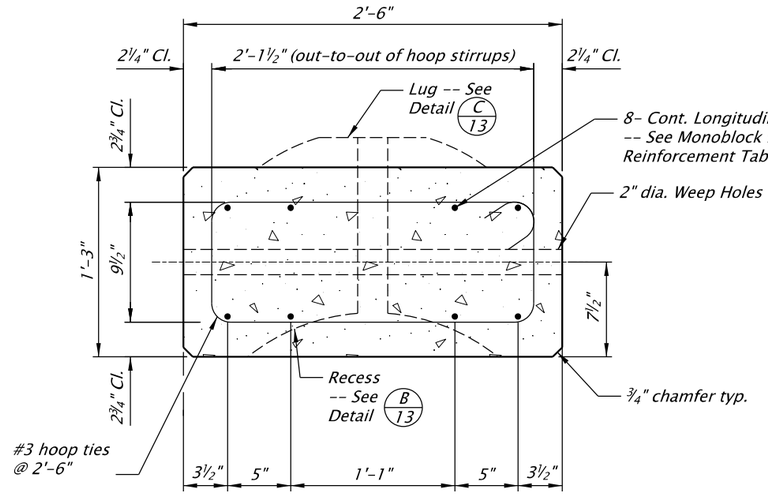
"STANDARD" ABUTMENT BLOCK DETAILS

SHEET NO. 11



2/A "MONO" ABUTMENT BLOCK PLAN

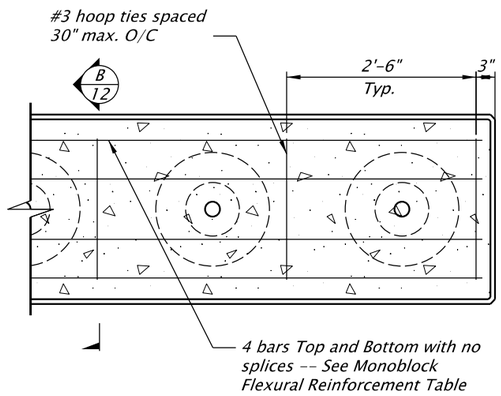
1/A TYPICAL "MONO" ABUTMENT BLOCK ELEVATION

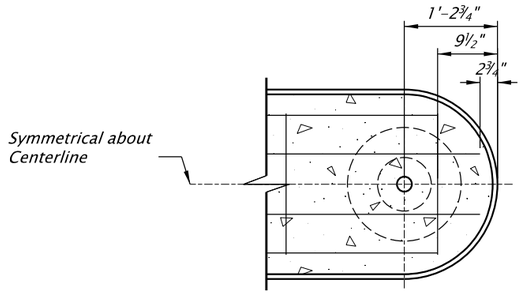


Monoblock Flexural Reinforcement	
Block Length	Bar Size
L ≤ 15'-0"	#4
15'-0" < L ≤ 22'-6"	#5
L > 22'-6"	#6

A/12 PLANS AND ELEVATION OF MODULAR CONCRETE "MONO" ABUTMENT BLOCK UNITS
Scale: ¼" = 1'-0"

B/12 TYPICAL SECTION THRU "MONO" ABUTMENT BLOCK
Scale: 1"= 1'-0"





1/C RADIUS (ROUND) END OPTION

C/12 TYPICAL CONCRETE MONO ABUTMENT BLOCK REINFORCING
Scale: ½" = 1'-0"

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SWALE CREEK BRIDGE - WEST

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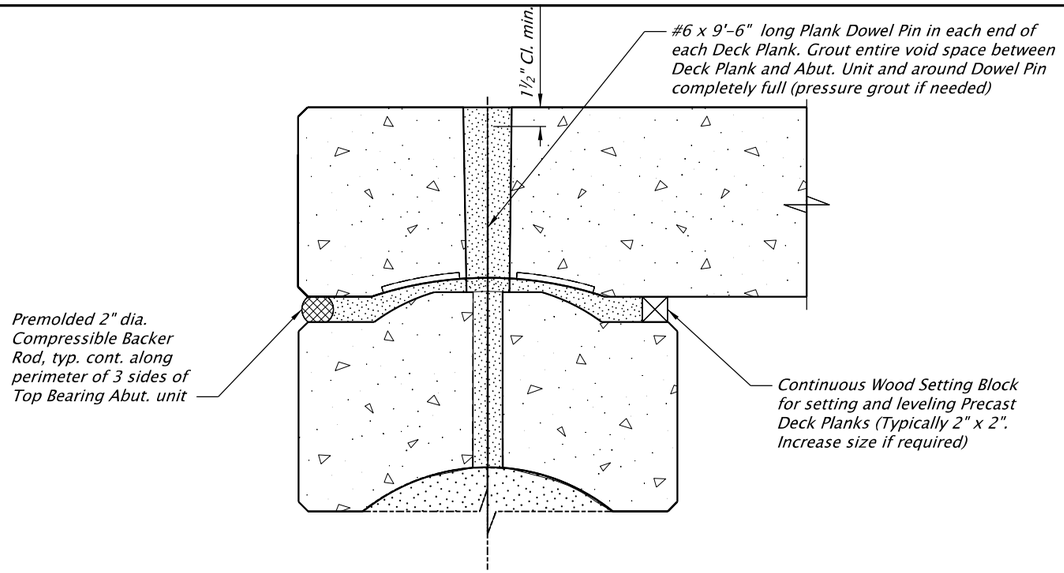
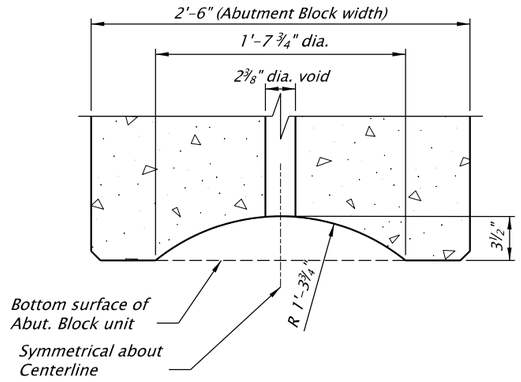
"MONO" ABUTMENT BLOCK DETAILS

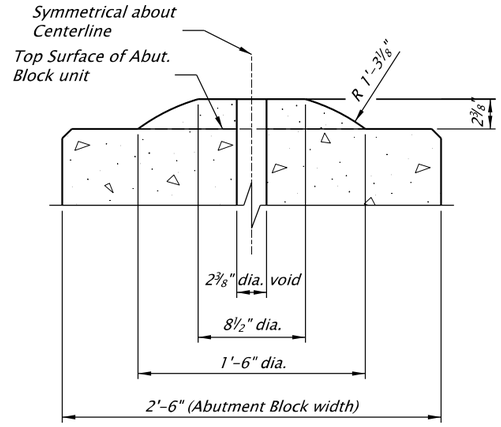
SHEET NO. 12



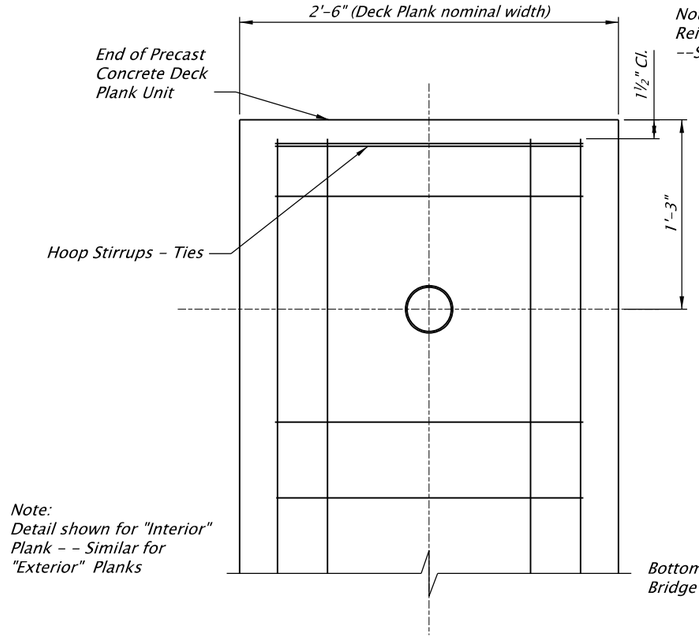
A/13 **BRIDGE PLANK TO ABUTMENT CONNECTION**
Scale: 1"=1'-0"



B/13 **TYPICAL ABUTMENT BLOCK RECESS ON BOTTOM OF ALL ABUTMENT BLOCKS**
Scale: 1"=1'-0"

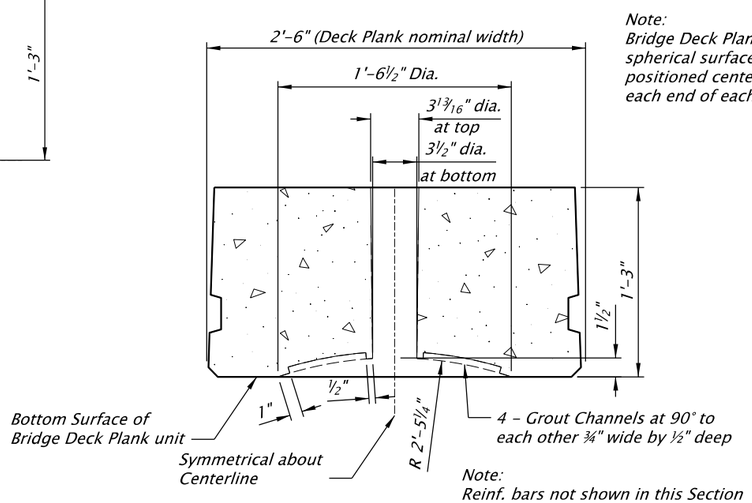


C/13 **TYPICAL ABUTMENT BLOCK RECESS ON TOP OF ALL ABUTMENT BLOCKS**
Scale: 1"=1'-0"



Note:
Reinf. Bars shown schematically
--See Details A/10 B/10

D/13 **PLAN VIEW OF END OF EACH DECK PLANK UNIT**
Scale: 1"=1'-0"



Note:
Bridge Deck Plank Recesses have spherical surfaces and are positioned centered at 1'-3" from each end of each Plank.

Note:
Reinf. bars not shown in this Section

E/13 **TYPICAL END OF EACH DECK PLANK UNIT**
Scale: 1"=1'-0"

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SWALE CREEK BRIDGE - WEST

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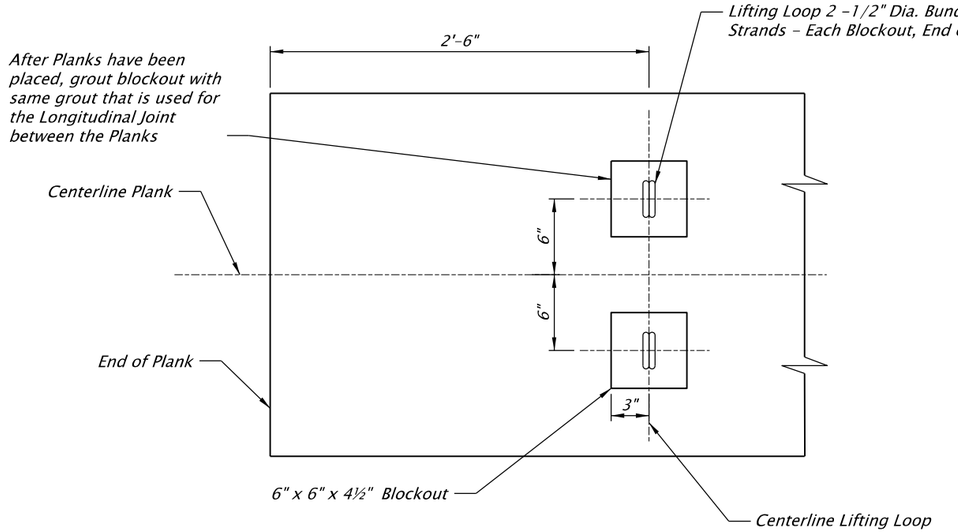
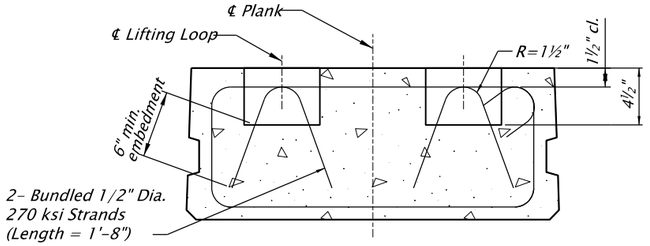
PLANK AND BLOCK DETAILS #1

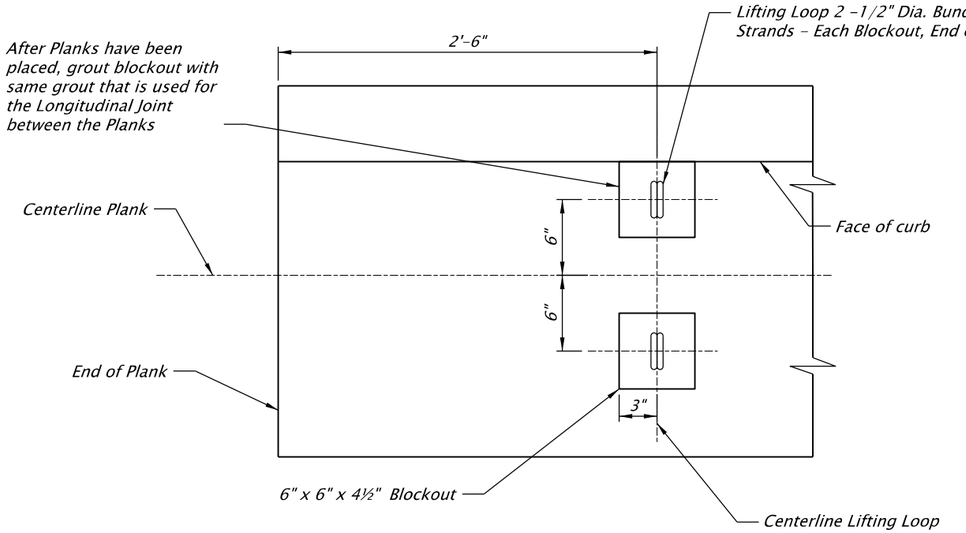
SHEET NO. 13



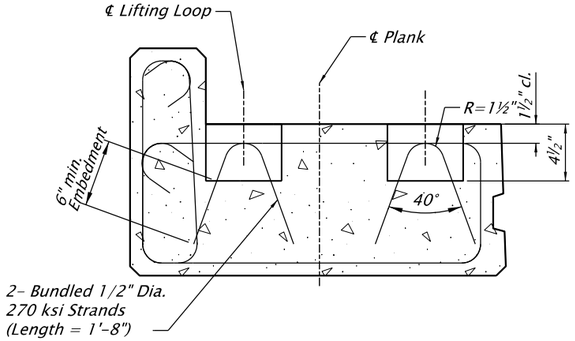
A/14 **LIFTING LOOP PLAN VIEW - INTERIOR PLANK**
Scale: 1" = 1'-0"



C/14 **LIFTING LOOP SECTION VIEW - INTERIOR PLANK**
Scale: 1" = 1'-0"



B/14 **LIFTING LOOP PLAN VIEW - INTERIOR PLANK**
Scale: 1" = 1'-0"



D/14 **LIFTING LOOP ELEVATION VIEW - EXTERIOR PLANK**
Scale: 1" = 1'-0"

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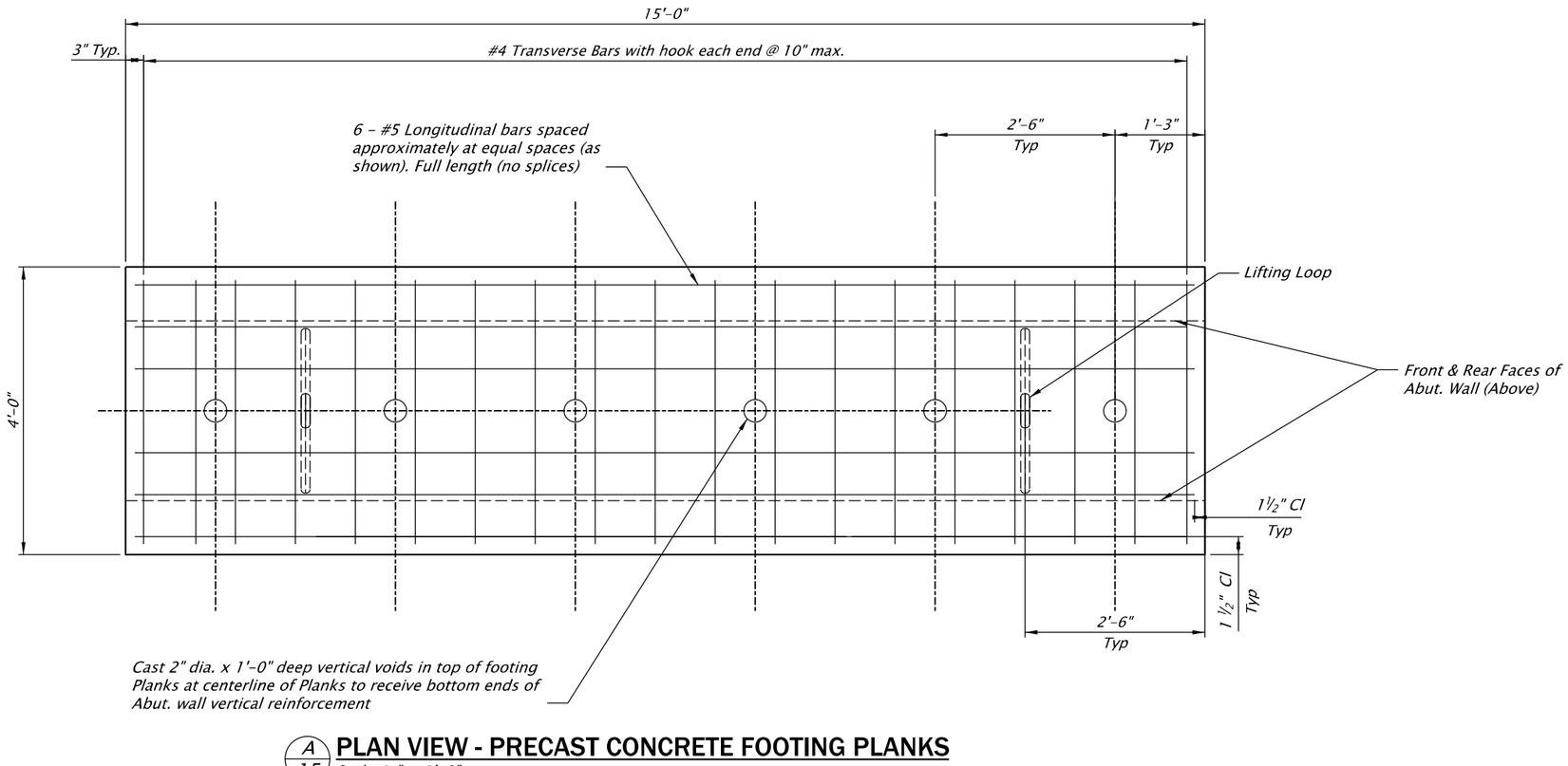
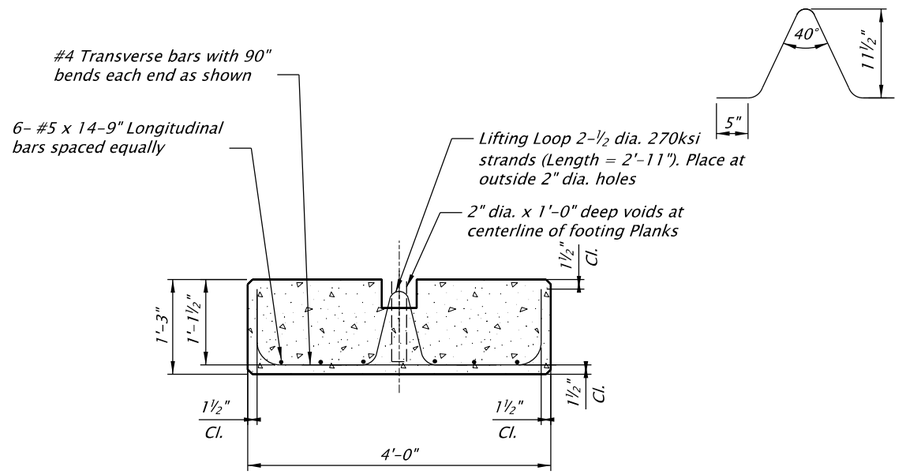
PLANK AND BLOCK DETAILS #2

SHEET NO. 14



A/15 PLAN VIEW - PRECAST CONCRETE FOOTING PLANKS

Scale: ½" = 1'-0"



B/15 SECTION VIEW - PRECAST CONCRETE FOOTING PLANKS

Scale: ½" = 1'-0"

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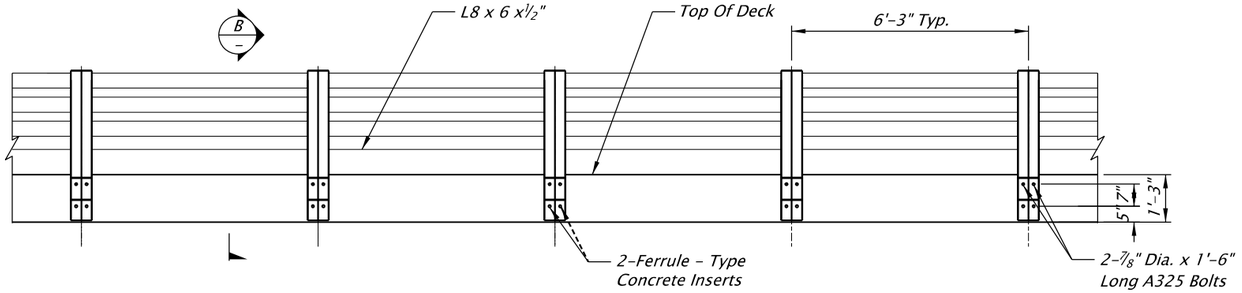
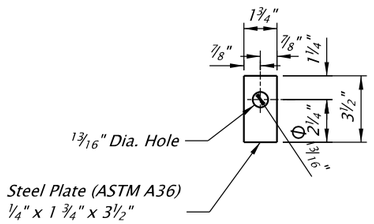
FOOTING CONCRETE BLOCK DETAILS

SHEET NO. 15



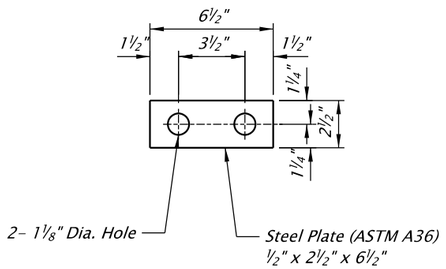
A/16 TYPICAL GUARDRAIL ANCHOR ELEVATION

Scale: ¼" = 1'-0"



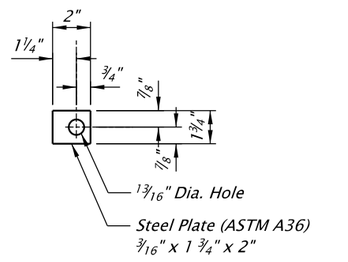
Note:
Position Washers To Completely Cover
Slotted Holes In Flange Of Steel Post

PLATE WASHER "A"



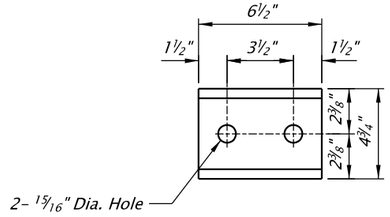
Note:
2- Washer "B" Required Per Post
(Including Cast In Bridge Plank)

PLATE WASHER "B"



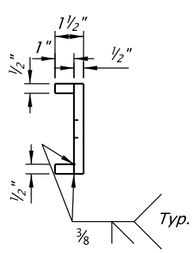
Note:
Position Washers To Completely Cover
Slotted Holes In Thrie-Beam Guardrail

PLATE WASHER "C"



Note:
Fabricate from Steel Plate (ASTM A36)
½" Thick Plates

PLATE WASHER "D"



Note:
All Washers Hot-Dip Galvanize After
Fabrication.

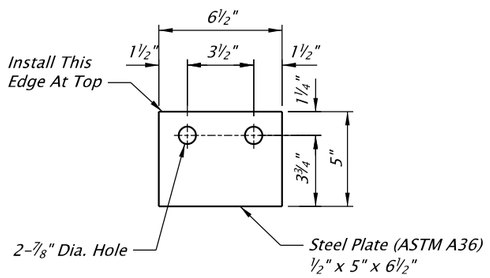
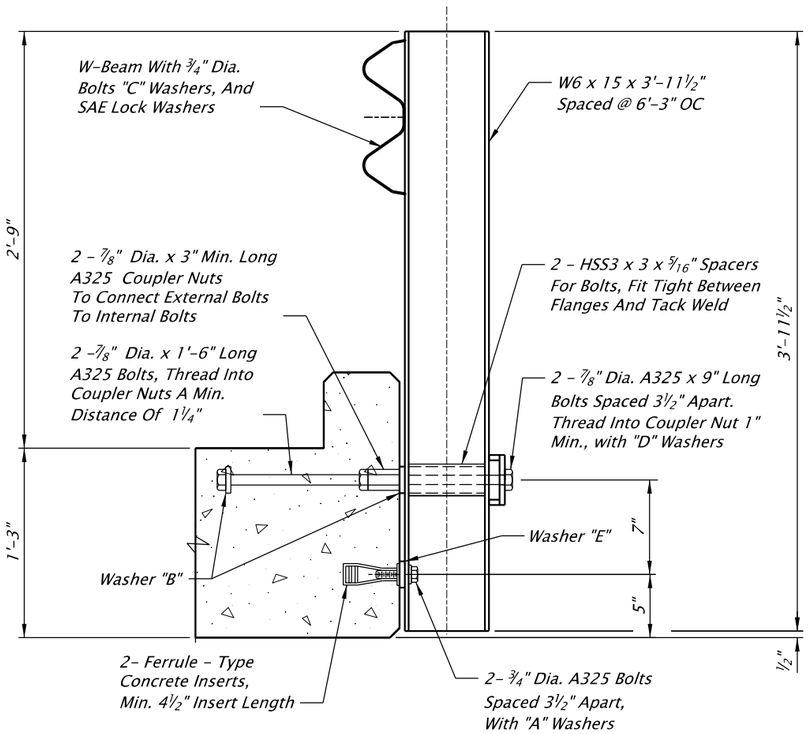


PLATE WASHER "E"

C/16 WASHER DETAILS FOR GUARDRAIL ANCHORS

Scale: 1½" = 1'-0"

Note:
1. Hot-Dip Galvanize All Steel Hardware After Fabrication
2. For Washer "B", See Detail C/16



B/16 GUARDRAIL ANCHORS IN PRECAST BRIDGE PLANK

Scale: ¾" = 1'-0"

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GUARDRAIL ANCHOR DETAILS

SHEET NO. 16